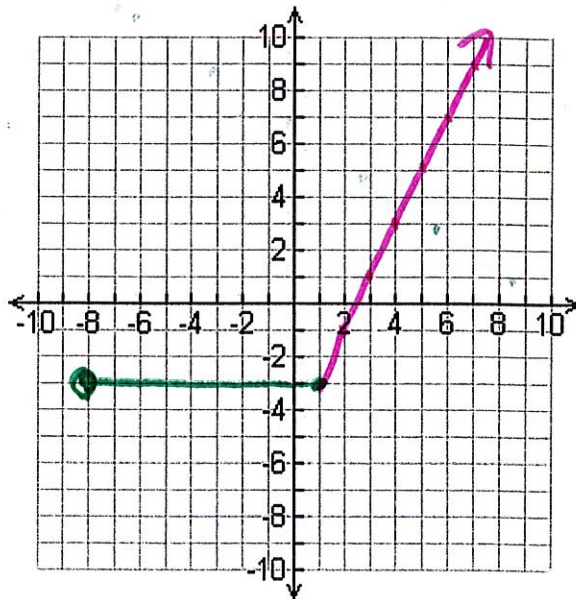


Michael T. Davis  
Pre-Calculus

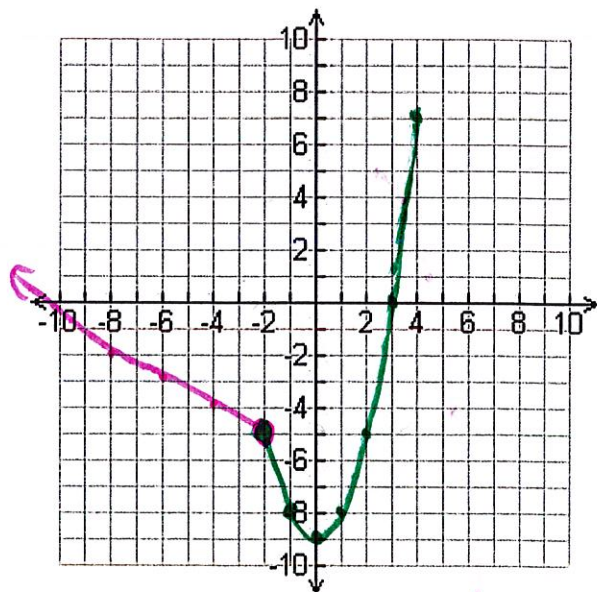
Units ~~1.9~~ <sup>1.10</sup> & ~~1.10~~ <sup>1.11</sup> Piecewise & Inverse Functions Quiz  
November 8, 2016

Name: \_\_\_\_\_

1. Graph  $f(x) = \begin{cases} -3 & \text{if } (-8, 1] \\ 2x - 5 & \text{if } (1, \infty) \end{cases}$

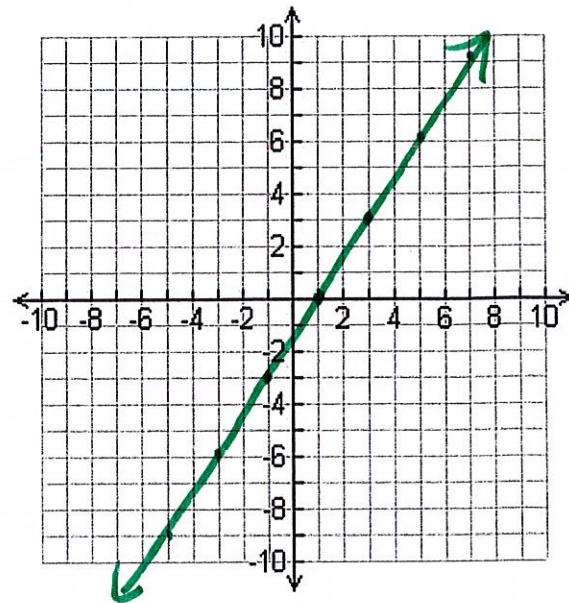
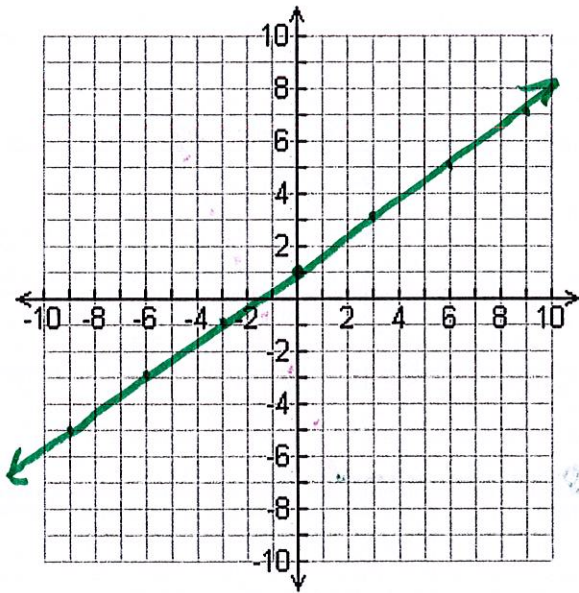


2. Graph  $g(x) = \begin{cases} -\frac{1}{2}x - 6 & \text{if } (-\infty, -2) \\ x^2 - 9 & \text{if } [-2, 4] \end{cases}$



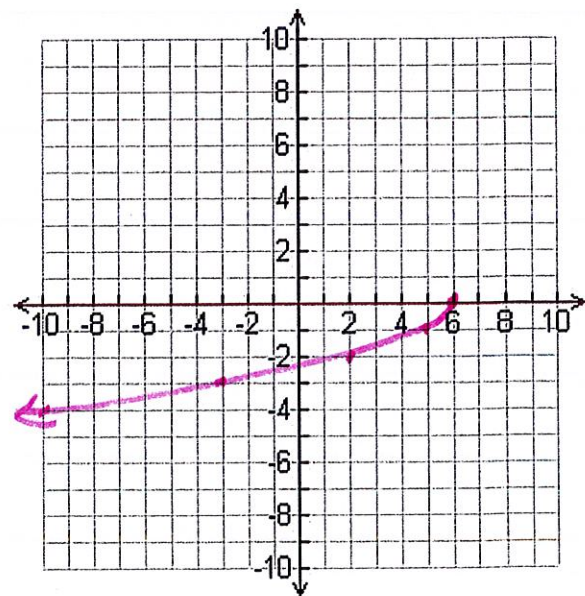
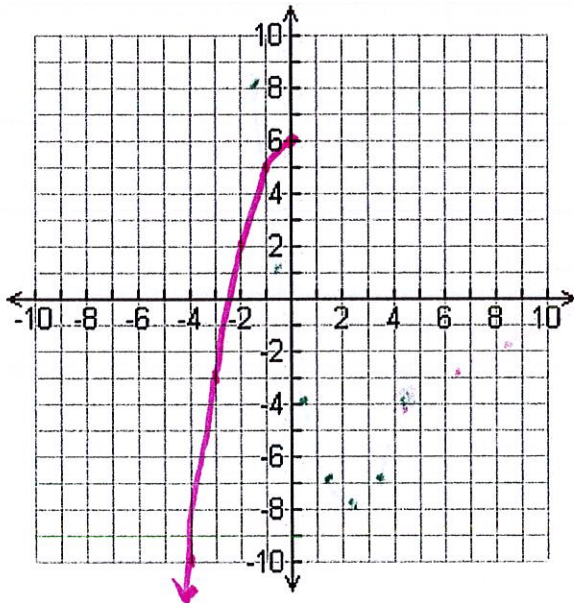
3. Graph  $f(x) = \frac{2}{3}x + 1$

Graph the Inverse function

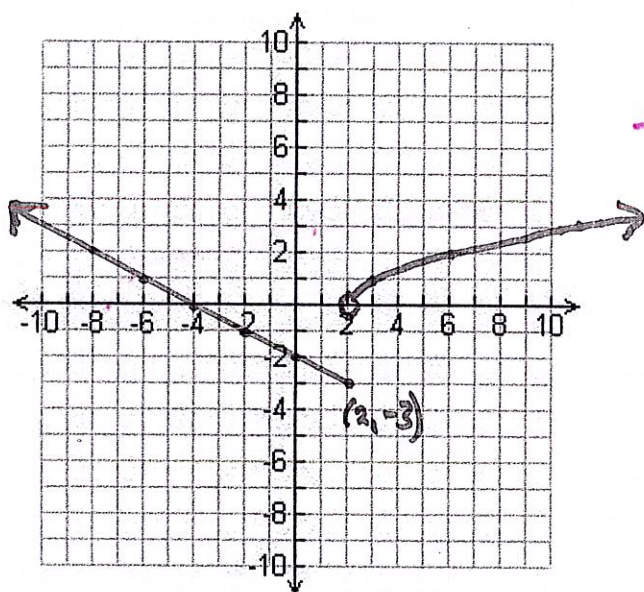


4. Graph  $g(x) = 6 - x^2, (-\infty, 0]$

Graph the Inverse function



5. Write a piecewise function equation for the graph of the piecewise function shown below.

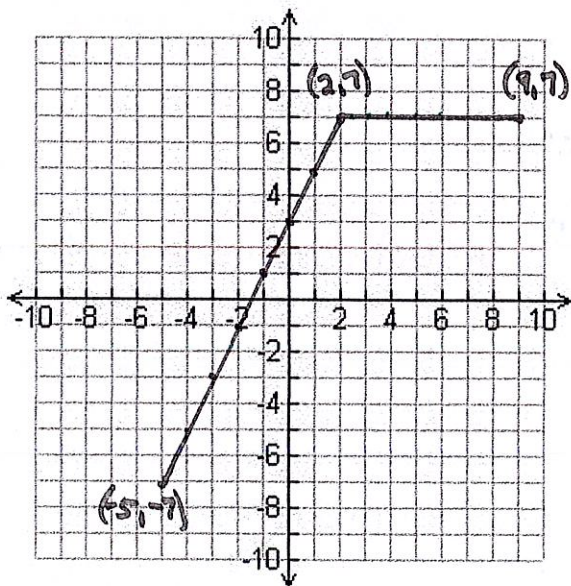


$$f(x) = \begin{cases} \sqrt{x-2} & \text{if } x \geq 2 \\ -\frac{1}{2}x - 2 & \text{if } x \leq 2 \end{cases}$$

(2, 0)

(-∞, 2]

6. Write a piecewise function equation for the graph of the piecewise function shown below.



$$f(x) = \begin{cases} 7 & \text{if } [2, 9] \\ 2x + 3 & \text{if } [-5, 2) \end{cases}$$

7. Given  $g(x) = \frac{1}{2}x - 4$ , determine an equation for the inverse function  $g^{-1}(x)$

$$y = \frac{1}{2}x - 4$$

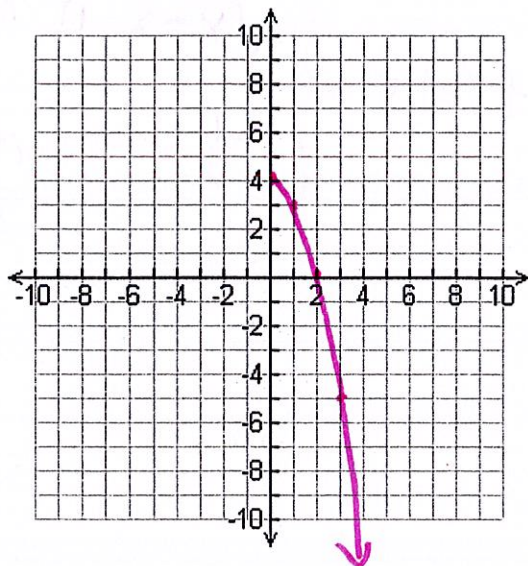
$$x = \frac{1}{2}y - 4$$

$$x + 4 = \frac{1}{2}y$$

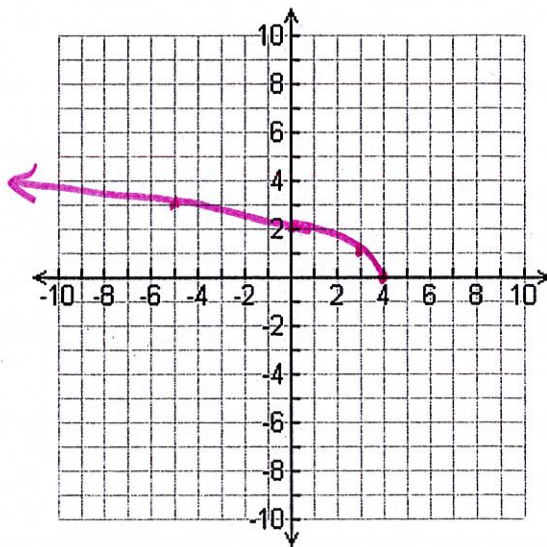
$$2x + 8 = y$$

$$g^{-1}(x) = 2x + 8$$

8. Graph  $f(x) = 4 - x^2$  if  $[0, \infty)$



Graph the Inverse function



9. Given  $k(x) = \sqrt{x+6}$ , determine an equation for the inverse function  $k^{-1}(x)$  and state the domain of the inverse function.

$$y = \sqrt{x+6} \quad y \geq 0$$

$$x = \sqrt{y+6} \quad x \geq 0$$

$$k^{-1}(x) = x^2 - 6, \quad x \geq 0$$

$$x^2 = y + 6$$

$$x^2 - 6 = y$$

**Optional Extra Credit:**

Some function  $f(x)$  has an inverse function  $f^{-1}(x)$ . If  $f(7) = -1$ , then

a.  $f^{-1}(-1) =$

b.  $f(f^{-1}(3)) =$